

Calcula y simplifica:

$$1) 3\left(\frac{1}{2} - \frac{2}{3}\right) + \frac{5}{6} =$$

$$2) -2\left(\frac{3}{5} + \frac{1}{10}\right) - \frac{2}{3} \cdot \frac{2}{5} =$$

$$3) \frac{3}{5} - \frac{2}{5} \cdot \left(\frac{3}{4} + \frac{5}{2}\right) - 2 \cdot \frac{7}{10} =$$

$$4) \frac{3}{8} \left(\frac{5}{3} - \frac{1}{2}\right) - \frac{4}{11} \cdot \left(\frac{3}{4} - \frac{1}{5}\right)$$

$$5) \frac{5}{9} - \left(-\frac{3}{4} + \frac{1}{2}\right) + \frac{10}{3} \cdot \left(\frac{1}{2} - \frac{3}{5}\right) =$$

$$6) \frac{3}{5} : \frac{2}{3} - \frac{4}{3} \cdot \frac{4}{5} + \frac{1}{3} - \frac{3}{4} : \frac{3}{7} =$$

$$7) \left(\frac{2}{3} - \frac{7}{2} - \frac{5}{6} + \frac{1}{4}\right) : \left(-\frac{4}{3} + \frac{2}{3} - \frac{1}{6}\right) =$$

$$8) \left[\frac{1}{3} + \frac{1}{2} \cdot \left(\frac{1}{2} - \frac{1}{4}\right) + 5\right] - 3 \cdot \frac{1}{4} =$$

## SOLUCIONES A OPERACIONES CON FRACCIONES 3º ESO FICHA 1-4

En todos los ejercicios vamos a ir simplificando en cada operación siempre que se pueda.

$$1. \quad 3\left(\frac{1}{2} - \frac{2}{3}\right) + \frac{5}{6} = 3 \cdot \left(\frac{3-4}{6}\right) + \frac{5}{6} = \frac{3 \cdot (-1)}{6} + \frac{5}{6} = \frac{-3+5}{6} = \frac{2}{6} = \frac{1}{3} \text{ (dividiendo por 2 numerador y denominador)}$$

$$2. \quad -2\left(\frac{3}{5} + \frac{1}{10}\right) - \frac{2}{3} \cdot \frac{2}{5} = -2\left(\frac{3+2}{10}\right) - \frac{4}{15} = -\frac{2 \cdot 7}{10} - \frac{4}{15} = (\text{simplificando por 2}) -\frac{7}{5} - \frac{4}{15} = \\ = \frac{-7 \cdot 3 - 4}{15} = \frac{-25}{15} = \frac{-5}{3} \text{ (dividiendo por 5 numerador y denominador)}$$

$$3. \quad \frac{3}{5} - \frac{2}{5} \cdot \left(\frac{3}{4} + \frac{5}{2}\right) - 2 \cdot \frac{7}{10} = \frac{3}{5} - \frac{2}{5} \cdot \left(\frac{3+5 \cdot 2}{4}\right) - \frac{2 \cdot 7}{2 \cdot 5} = \frac{3}{5} - \frac{2}{5} \cdot \left(\frac{13}{4}\right) - \frac{7}{5} = \frac{3}{5} - \frac{13}{5 \cdot 2} - \frac{7}{5} = \\ \frac{3 \cdot 2 - 13 - 7 \cdot 2}{10} = \frac{-21}{10}$$

$$4. \quad \frac{3}{8} \left(\frac{5}{3} - \frac{1}{2}\right) - \frac{4}{11} \cdot \left(\frac{3}{4} - \frac{1}{5}\right) = \frac{3}{8} \cdot \left(\frac{5 \cdot 2 - 3}{3 \cdot 2}\right) - \frac{4}{11} \cdot \left(\frac{3 \cdot 5 - 4}{4 \cdot 5}\right) = \frac{3 \cdot 7}{8 \cdot 3 \cdot 2} - \frac{4 \cdot 11}{11 \cdot 4 \cdot 5} = (\text{simplificando fracciones}) \\ = \frac{7}{8 \cdot 2} - \frac{1}{5} = \frac{7 \cdot 5 - 8 \cdot 2}{8 \cdot 2 \cdot 5} = \frac{35 - 16}{80} = \frac{19}{80}$$

$$5. \quad \frac{5}{9} - \left(-\frac{3}{4} + \frac{1}{2}\right) + \frac{10}{3} \cdot \left(\frac{1}{2} - \frac{3}{5}\right) = \frac{5}{9} - \left(\frac{-3+2}{4}\right) + \frac{10}{3} \cdot \left(\frac{5-6}{10}\right) = \frac{5}{9} - \left(-\frac{1}{4}\right) + \frac{10}{3} \cdot \left(-\frac{1}{10}\right) = \\ \frac{5}{9} + \frac{1}{4} - \frac{1}{3} = \frac{5 \cdot 4 + 9 - 12}{9 \cdot 4} = \frac{17}{36}$$

$$6. \quad \frac{3}{5} : \frac{2}{3} - \frac{4}{3} \cdot \frac{4}{5} + \frac{1}{3} - \frac{3}{4} : \frac{3}{7} = \frac{3 \cdot 3}{5 \cdot 2} - \frac{4 \cdot 4}{3 \cdot 5} + \frac{1}{3} - \frac{3 \cdot 7}{4 \cdot 3} = \frac{3 \cdot 3 \cdot 3 \cdot 2 - 4 \cdot 4 \cdot 4 + 5 \cdot 4 - 3 \cdot 7 \cdot 5}{5 \cdot 3 \cdot 4} = \\ \frac{54 - 64 + 20 - 105}{60} = \frac{-95}{60} = \frac{-19}{12}$$

$$7. \quad \left(\frac{2}{3} - \frac{7}{2} - \frac{5}{6} + \frac{1}{4}\right) : \left(-\frac{4}{3} + \frac{2}{3} - \frac{1}{6}\right) = \frac{2 \cdot 4 - 7 \cdot 2 \cdot 3 - 5 \cdot 2 + 3}{3 \cdot 4} : \frac{-8 + 4 - 1}{6} = \frac{-41}{12} : \frac{-5}{6} = + \frac{41 \cdot 6}{12 \cdot 5} = \frac{41}{10}$$

$$8. \quad \left[\frac{1}{3} + \frac{1}{2} \cdot \left(\frac{1}{2} - \frac{1}{4}\right) + 5\right] - 3 \cdot \frac{1}{4} = \left[\frac{1}{3} + \frac{1}{2} \cdot \frac{1}{2} + 5\right] - \frac{3}{4} = \frac{4 + 3 + 60}{12} - \frac{3}{4} = \frac{67}{12} - \frac{9}{12} = \frac{58}{12} = \frac{29}{6}$$